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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
FREDMAN, JEFFREY NORMAN	
ART UNIT	**PAPER NUMBER**
1637	

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/500,293	OONO ET AL.	
	Examiner	Art Unit	
	Jeffrey Fredman	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-5* is/are rejected.

7)☒ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 13, 2005 has been entered.

Claim Interpretation

2. The claims now encompass two new elements. The word "gene" replaces "nucleic acid". Prior to substantive examination, the scope of this term must be analyzed. The word "gene" appears one time in the specification, at page 5, line 2, in the context of "ribosomal genes". As the Federal Circuit notes in In re Morris, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997), "The PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification." The current specification provides no definition or enlightenment regarding the meaning of the term "gene". Applicant argues (at page 5 of the response) that a gene is a "hereditary unit encoding a specific functional product (ie a protein or RNA)" and that the oligonucleotides disclosed in Mandecki are not "genes" within the meaning of that term. This analysis is not correct

for several reasons. First, the oligonucleotides of Mandecki do encode peptides. For example, the oligonucleotide disclosed at the top of column 11 has the sequence "GT ATG GTA CTG CAA". This oligonucleotide would encode the peptide "Met Val Leu Gln". So the sequence of Mandecki is capable of encoding a peptide. Second, given the knowledge in the art of SN RNAs and other RNA molecules that are only 21 nucleotides in length, but which are specific functional products encoded by the genome, the oligonucleotides of Mandecki are easily long enough to encode such SNRNAs in their entirety and meet the "gene" limitation. Therefore, applying the broadest reasonable interpretation of the term "gene", Mandecki remains anticipatory with regard to this element.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Mandecki et al (U.S. Patent 6,046,003).

Mandecki teaches a method for producing a labeled nucleic acid (e.g., fluorescently-labeled target DNA bound to probe attached to the surface of the transponder), wherein the

method comprises binding the nucleic acid (e.g., oligonucleotides) to a large scale integrated circuit (e.g., solid phase particles having a transponder associated with each particle), and recording specific
information (e.g., the sequence of the oligonucleotide) on the large scale integrated circuit (column 1, lines 55 - column 2, line 6, column 17, lines 28-44).

With regard to claim 3, Mandecki teaches a method wherein a substrate (e.g.. monoisocyanate) mediates the binding of a nucleic acid to the large scale integrated circuit (column 8, lines 21-45).

5. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Moran et al (J. Am. Chem. Soc. (1995) 117:10787-10788).

Moran teaches a method for producing a labeled protein (see page 10787, column 2 where specific peptides were attached to the surface of a transponder), wherein the
method comprises binding the protein to a large scale integrated circuit (see page 10787, column 1, where a transponder is associated with each peptide), and recording specific
information that is characteristic of the peptide (e.g., the sequence of the peptide, see page 10787, column 2 and see supplementary information page 3) on the large scale integrated circuit (see page 10787, column 1 and supplementary information page 3).

With regard to claim 3, Moran teaches a method wherein the peptide is bound to the large scale integrated circuit via a resin (see page 10787, column 2).

6. Claims 1, 3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Nova et al (U.S. Patent 5,741,462).

Nova teaches a method for producing a labeled protein or gene (see abstract), wherein the method comprises binding the protein to a large scale integrated circuit (see column 29, line 45 to column 30, line 14, where antibodies are bound to the integrated circuit), and recording specific information that is characteristic of the peptide (see column 29, lines 50-55 where each antibody "is given a specific identification tag") on the large scale integrated circuit (see columns 29 and 30).

With regard to claim 3, Nova teaches a method wherein the peptide is bound to the large scale integrated circuit via a linker (see column 18, line 10, for example).

With regard to claim 5, Nova teaches an antibody mediates binding of a protein to the integrated circuit (see columns 29-30).

7. The rejection of claims 1 and 3-5 under 35 U.S.C. 102(b) as being anticipated by Gordon et al (U.S. Patent 6,251,595) is withdrawn in view of the amendment.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mandecki et al (U.S. Patent 6,046,003) in view of Stavrianopoulos et al (U.S. Patent 4,994,373).

Mandecki teaches a method for producing a labeled nucleic acid (e.g., fluorescently-labeled target DNA bound to probe attached to the surface of the transponder), wherein the
method comprises binding the nucleic acid (e.g., oligonucleotides) to a large scale integrated circuit (e.g., solid phase particles having a transponder associated with each particle), and recording specific
information (e.g., the sequence of the oligonucleotide) on the large scale integrated circuit (column 1, lines 55 - column 2, line 6, column 17, lines 28-44).

With regard to claim 3, Mandecki teaches a method wherein a substrate (e.g.. monoisocyanate) mediates the binding of a nucleic acid to the large scale integrated circuit (column 8, lines 21-45).

Mandecki does not teach the specific substrates of claim 4.

Stavrianopoulos teaches attachment of nucleic acids to plastic matrices (see column 12, lines 5-15, for example).

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use the epoxy resin of Stavrianopoulos to attach the nucleic acids of Mandecki since Stavrianopoulos notes "An improved capability for fixing or immobilization of DNA to non-porous siliceous solid supports, such as glass and plastic, is also provided by treatment with a coating of an epoxy resin. (see column 12, lines 5-15)". An ordinary practitioner would have been motivated to use the epoxy resin of Stavrianopoulos in order to improve the ability of the DNA to be fixed to the plastic solid supports of Mandecki as expressly suggested by Stavrianopoulos.

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nova et al (U.S. Patent 5,741,462) in view of Stavrianopoulos et al (U.S. Patent 4,994,373).

Nova teaches a method for producing a labeled protein or gene (see abstract and column 11, lines 62-64), wherein the method comprises binding the protein to a large scale integrated circuit (see column 29, line 45 to column 30, line 14, where antibodies are bound to the integrated circuit), and recording specific information that is characteristic of the peptide (see column 29, lines 50-55 where each antibody "is given a specific identification tag") on the large scale integrated circuit (see columns 29 and 30).

With regard to claim 3, Nova teaches a method wherein the peptide is bound to the large scale integrated circuit via a linker (see column 18, line 10, for example).

With regard to claim 5, Nova teaches an antibody mediates binding of a protein to the integrated circuit (see columns 29-30).

Nova teaches a variety of synthetic plastic matrices as substrates at column 17, but Nova does not teach the specific substrates of claim 4.

Stavrianopoulos teaches attachment of nucleic acids to plastic matrices such as those of Nova using epoxy resin (see column 12, lines 5-15, for example).

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use the epoxy resin of Stavrianopoulos to attach the nucleic acids or proteins of Nova since Stavrianopoulos notes "An improved capability for fixing or immobilization of DNA to non-porous siliceous solid supports, such as glass and plastic, is also provided by treatment with a coating of an epoxy resin. (see column 12, lines 5-15)". An ordinary practitioner would have been motivated to use the epoxy resin of Stavrianopoulos in order to improve the ability of the DNA to be fixed to the plastic solid supports of Nova as expressly suggested by Stavrianopoulos.

Allowable Subject Matter

12. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter: Claim 6 is drawn to an embodiment with two differences from claim 1, a requirement that the protein is attached to the integrated circuit via the sugar chain and a requirement that some information regarding the sugar chain is encoded on the integrated circuit. While Keogh does teach attachment of proteins to supports via sugar chains, Keogh does not suggest encoding this information onto an integrated circuit. While Mandecki teaches encoding the sequence of the nucleic acid onto the circuit, there is no suggestion to encode the linker information, to which the sugar in claim 6 corresponds. Therefore, there is no suggestion in the prior art to both attach a protein by a sugar chain and encode the sugar chain information onto the integrated circuit.

Response to Arguments

14. Applicant's arguments filed December 13, 2005 have been fully considered but they are not persuasive.

Applicant first argues that Mandecki does not teach a gene. As discussed in the claim interpretation section, Mandecki teaches a sequence which meets the "gene" requirement as broadly interpreted. Given the claim as amended, Mandecki does not teach a protein, but this is fully met by Moran and Nova, who both teach proteins attached to integrated circuits with the specific protein information being placed on the integrated circuit.

The Gordon rejection is withdrawn in view of the amendment.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Fredman whose telephone number is (571)272-0742. The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (571)272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeffrey Fredman
Primary Examiner
Art Unit 1637
2/2/06